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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 9

Application Number: 09/494,796
Filing Date: 01/31/2000
Appellant(s): GENLY, C. H.

Timothy N. Trop, Reg. No. 28,994
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed August 12, 2002.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1-30 do not stand or fall together but does not provide reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5,265,014	HADDOCK ET AL	11-1993
6,32,4512	JUNQUA ET AL	11-2001

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 6-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Haddock et al (US Patent No. 5,265,014), hereinafter referred to as Haddock.

Haddock discloses a multi-modal user interface for removing a referential ambiguity from a natural language input to a computer system.

Regarding claim 1, at col. 6, lines 15-38, Haddock teaches the process of how an ambiguous query is processed and syntactically analyzed to develop a representation of the syntactic structure. The system produces a syntactic structure based upon a question/sentence format to represent a set of questions, a set of nouns, a set of phrases, and a set of verbs. Haddock also discloses that the query can be translated into a formal database query such as an SQL query (col. 6, lines 62-64) , which reads on "develop a state vector representing the meaning of a spoken query."

Additionally, at col. 6, lines 29-41 Haddock discloses that the system characterizes the query to find values of the variable that fulfills the condition or question within the query. In the example provided by Haddock, the query produced the syntactic structure (WHICH X s.t. (PAINT *REF(he) X)), which read on the "state vector", and the request of the query is to find any values of X that meet the condition of (PAINT *REF(he) X). The condition (PAINT REF(he) X), is comprised of a semantic predicate PAINT and two variables, the painter

(REF(he)) and the painting (X), which reads on "form an attribute, value pair for said state vector."

Regarding claim 2, Haddock discloses everything as claimed in claim 1. Additionally, at col. 6, lines 48-60, Haddock discloses that in the example query, the meaning of the pronoun "he" is ambiguous and in order to resolve the ambiguity for further processing, the system uses the history of the dialog of a previous query to determine the reference to the "he", in order to form the completed query of (WHICH X s.t. (PAINT DEGAS X)), wherein the value of the *REF(he) is obtained from a previous query, which reads on "develop an utterance vector from a current user query and a history vector from a previous user query."

Regarding claim 3, Haddock discloses everything as claimed in claim 2. Additionally, at col. 6, lines 48-60, Haddock discloses that in the example query, the meaning of the pronoun "he" is ambiguous and in order to resolve the ambiguity for further processing, the system uses the history of the dialog of a previous query to determine the reference to the "he", in order to form the completed query of (WHICH X s.t. (PAINT DEGAS X)), wherein the value of the *REF(he) is obtained from a previous query, which reads on "merge the utterance vector with the history vector to develop an in-context meaning vector."

Regarding claims 6 and 8, at col. 6, lines 15-38, Haddock teaches the process of how an ambiguous query is processed and syntactically analyzed to develop a representation of the syntactic structure. The system produces a syntactic structure based upon a question/sentence format to represent a set of questions, a set of nouns, a set of phrases, and a set of verbs. Haddock also discloses that the query can be translated into a formal database query such as an

SQL query (col. 6, lines 62-64), which reads on "develop a state vector representing the meaning of a spoken query."

Additionally, at col. 6, lines 29-41 Haddock discloses that the system characterizes the query to find values of the variable that fulfills the condition or question within the query. In the example provided by Haddock, the query produced the syntactic structure (WHICH X s.t. (PAINT *REF(he) X)), which read on the "state vector", and the request of the query is to find any values of X that meet the condition of (PAINT *REF(he) X). The condition (PAINT REF(he) X), is comprised of a semantic predicate PAINT and two variables, the painter (REF(he)) and the painting (X), which reads on "form an attribute, value pair for said state vector."

Regarding claim 7, Haddock discloses everything as claimed in claim 6. Additionally, at col. 6, lines 15-30, Haddock discloses the format of the syntactic structure includes sentence structure of nouns, phrases, and verbs, which reads on "using a non-recursive data structure includes using only non-recursive data structures as said value."

Regarding claim 9, Haddock discloses everything as claimed in claim 6. Additionally, at col. 6, lines 48-60, Haddock discloses that in the example query, the meaning of the pronoun "he" is ambiguous and in order to resolve the ambiguity for further processing, the system uses the history of the dialog of a previous query to determine the reference to the "he", in order to form the completed query of (WHICH X s.t. (PAINT DEGAS X)), wherein the value of the *REF(he) is obtained from a previous query, which reads on "develop an utterance vector from a current user query and a history vector from a previous user query."

Regarding claim 10, Haddock discloses everything as claimed in claim 9. Additionally, at col. 6, lines 48-60, Haddock discloses that in the example query, the meaning of the pronoun "he" is ambiguous and in order to resolve the ambiguity for further processing, the system uses the history of the dialog of a previous query to determine the reference to the "he", in order to form the completed query of (WHICH X s.t. (PAINT DEGAS X)), wherein the value of the *REF(he) is obtained from a previous query, which reads on "merge the utterance vector with the history vector to develop an in-context meaning vector."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4-5, 11-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haddock et al.

Regarding claims 13, 18, and 23 at col. 6, lines 15-38, Haddock teaches the process of how an ambiguous query is processed and syntactically analyzed to develop a representation of the syntactic structure. The system produces a syntactic structure based upon a question/sentence format to represent a set of questions, a set of nouns, a set of phrases, and a set of verbs. Haddock also discloses that the query can be translated into a formal database query such as an SQL query (col. 6, lines 62-64). Additionally, at col. 6, lines 29-41 Haddock discloses the system characterizes the query to find values of the variable that fulfills the

condition or question within the query. In the example provided by Haddock, the query produced the syntactic structure (WHICH X s.t. (PAINT *REF(he) X)) and the request of the query is to find any values of X that meet the condition of (PAINT *REF(he) X). The condition (PAINT REF(he) X) is comprised of a semantic predicate PAINT and two variables, the painter (REF(he)) and the painting (X), which reads on "develop a first representation of a current user query."

At col. 6, lines 48-60, Haddock discloses that in the example query, the meaning of the pronoun "he" is ambiguous and in order to resolve the ambiguity for further processing, the system uses the history of the dialog of a previous query to determine the reference to the "he", which reads on "develop a second representation of a previous user query."

Haddock et al do not specifically teach determining whether the utterance representation includes only one of two types of variables. At col. 6, lines 39-59, Haddock discloses the functionality of the system for determining the meaning of an ambiguous query, in which the query representation contains the pronoun "he". The query is ambiguous because "it is not yet known who the pronoun "he" refers to because that information lies outside the query" (col. 6, lines 45-47). In this instance the system uses the history information to determine to whom "he" refers. However, if the utterance contains both of the attributes of the utterance, there is no ambiguous query and there is no need to use the history vector, as indicated in col. 5, lines 33-42, in which the query provided includes the names of the specific painter of whom a user wishes to retrieve information (query 1 and query 2). At col. 6, line 13, Haddock specifically states that query 2 is ambiguous because of the pronoun "he" and the system must resolve the ambiguity of the query via the history information. Haddock's determination of needing to use the history

dialog to resolve an ambiguous query in one instance or not needing to use a history dialog in another instance would suggest and/or motivate one of ordinary skill in the art to specifically determine if an utterance includes all necessary variables.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Haddock, to implement determining whether the utterance representation includes only one of two types of variables, for the purpose of reducing unnecessary processing if the meaning of the query can be ascertained.

Additionally, at col. 6, lines 48-60, Haddock discloses in order to form the completed query of (WHICH X s.t. (PAINT DEGAS X)), the value of the *REF(he) is obtained from a previous query, which reads on "merging the first representation with the second representation to form a third representation."

Regarding claims 14, 19, and 25, Haddock does not specifically teach determining whether the utterance representation includes only a where variable. At col. 6, lines 39-59, Haddock discloses the functionality of the system for determining the meaning of an ambiguous query, in which the query representation contains the pronoun "he". The query is ambiguous because "it is not yet known who the pronoun "he" refers to because that information lies outside the query" (col. 6, lines 45-47). In this instance the system uses the history information to determine to whom "he" refers. However, if the utterance contains both of the attributes of the utterance, there is no ambiguous query and there is no need to use the history vector, as indicated in col. 5, lines 33-42, in which the query provided includes the names of the specific painter of whom a user wishes to retrieve information (query 1 and query 2). At col. 6, line 13, Haddock specifically states that query 2 is ambiguous because of the pronoun "he", and thus the system

must resolve the ambiguity of the query via the history information. At col. 7, lines 10-35, Haddock refers to the ambiguous fourth query from col. 5, lines 42-44, in which "these" is used in the query. The system uses history information to determine the reference of the set or subset of paintings "these" actually refers. Haddock's determination of needing to use the history dialog to resolve an ambiguous query in one instance or not needing to use a history dialog in another instance would suggest and/or motivate one of ordinary skill in the art to specifically determine if an utterance includes all necessary variables.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Haddock, to implement determining whether the utterance representation includes only a where variable, for the purpose of reducing unnecessary processing if the meaning of the query can be ascertained.

Additionally, at col. 6, lines 48-60, Haddock discloses in order to form the completed query of (WHICH X s.t. (PAINT DEGAS X)), the value of the *REF(he) is obtained from a previous query, which reads on "use the second representation to form a third representation and insert the where variable into the second representation."

Regarding claims 15 and 20, Haddock does not specifically teach determining whether the utterance representation includes only a select variable. At col. 6, lines 39-59, Haddock discloses the functionality of the system for determining the meaning of an ambiguous query, in which the query representation contains the pronoun "he". The query is ambiguous because "it is not yet known who the pronoun "he" refers to because that information lies outside the query" (col. 6, lines 45-47). In this instance the system uses the history information to determine to whom "he" refers. However, if the utterance contains both of the attributes of the utterance,

there is no ambiguous query and there is no need to use the history vector, as indicated in col. 5, lines 33-42, in which the query provided includes the names of the specific painter of whom a user wishes to retrieve information (query 1 and query 2). At col. 6, line 13, Haddock specifically states that query 2 is ambiguous because of the pronoun "he", and thus the system must resolve the ambiguity of the query via the history information. At col. 7, lines 10-35, Haddock refers to the ambiguous fourth query from col. 5, lines 42-44, in which "these" is used in the query. The system uses history information to determine the reference of the set or subset of paintings "these" actually refers. Haddock's determination of needing to use the history dialog to resolve an ambiguous query in one instance or not needing to use a history dialog in another instance would suggest and/or motivate one of ordinary skill in the art to specifically determine if an utterance includes all necessary variables.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Haddock, to implement determining whether the utterance representation includes only a select variable, for the purpose of reducing unnecessary processing if the meaning of the query can be ascertained.

Additionally, at col. 7, lines 29-40, Haddock discloses in order to form the completed query of (WHICH X s.t. (IN X PARIS) & (X is_element_of {P4, P5, P6})), the value of the *REF(these) is obtained from a previous query, which reads on "use the second representation to form a third representation and insert the select variable into the second representation."

Regarding claims 16 and 21, Haddock does not specifically teach determining whether neither a where or select variable is contained in the first representation. At col. 6, lines 39-59, Haddock discloses the functionality of the system for determining the meaning of an ambiguous

query, in which the query representation contains the pronoun "he". The query is ambiguous because "it is not yet known who the pronoun "he" refers to because that information lies outside the query" (col. 6, lines 45-47). In this instance the system uses the history information to determine to whom "he" refers. However, if the utterance contains both of the attributes of the utterance, there is no ambiguous query and there is no need to use the history vector, as indicated in col. 5, lines 33-42, in which the query provided includes the names of the specific painter of whom a user wishes to retrieve information (query 1 and query 2). At col. 6, line 13, Haddock specifically states that query 2 is ambiguous because of the pronoun "he", and thus the system must resolve the ambiguity of the query via the history information. At col. 7, lines 10-35, Haddock refers to the ambiguous fourth query from col. 5, lines 42-44, in which "these" is used in the query. The system uses history information to determine the reference of the set or subset of paintings "these" actually refers. At col. 8, lines 3-4, Haddock indicates an example of multiple ambiguity "Which of these did he paint?", a query with neither variable specifically indicated. Haddock's determination of needing to use the history dialog to resolve an ambiguous query in one instance or not needing to use a history dialog in another instance would suggest and/or motivate one of ordinary skill in the art to specifically determine if an utterance includes all necessary variables.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Haddock, to implement determining whether the utterance representation includes neither a where or a select variable, for the purpose of reducing unnecessary processing if the meaning of the query can be ascertained.

Additionally, at col. 6, lines 48-60 and col. 7, lines 29-40, Haddock discloses in order to form the completed query, all variable ambiguities are obtained from the previous history queries, which reads on "make the third representation the same as the second representation."

Regarding claim 17 and 22, at col. 6, lines 39-59, Haddock discloses the functionality of the system for determining the meaning of an ambiguous query, in which the query representation contains the pronoun "he". The query is ambiguous because "it is not yet known who the pronoun "he" refers to because that information lies outside the query" (col. 6, lines 45-47). In this instance the system uses the history information to determine to whom "he" refers. However, if the utterance contains both of the attributes of the utterance, there is no ambiguous query and there is no need to use the history vector, as indicated in col. 5, lines 33-42, in which the query provided includes the names of the specific painter of whom a user wishes to retrieve information (query 1 and query 2), which reads on "determining whether both a where variable and a select variable are contained in the first representation."

Regarding claim 24, at col. 6, lines 15-30, Haddock discloses the format of the syntactic structure includes sentence structure of nouns, phrases, and verbs, which reads on "using a non-recursive data structure includes using only non-recursive data structures as said value."

Regarding claims 4 and 11, Haddock et al do not specifically teach determining whether the utterance representation includes only one type, a first or a second of two variable types. At col. 6, lines 39-59, Haddock discloses the functionality of the system for determining the meaning of an ambiguous query, in which the query representation contains the pronoun "he". The query is ambiguous because "it is not yet known who the pronoun "he" refers to because that information lies outside the query" (col. 6, lines 45-47). In this instance the system uses the

history information to determine to whom "he" refers. However, if the utterance contains both of the attributes of the utterance, there is no ambiguous query and there is no need to use the history vector, as indicated in col. 5, lines 33-42, in which the query provided includes the names of the specific painter of whom a user wishes to retrieve information (query 1 and query 2). At col. 6, line 13, Haddock specifically states that query 2 is ambiguous because of the pronoun "he" and the system must resolve the ambiguity of the query via the history information. Haddock's determination of needing to use the history dialog to resolve an ambiguous query in one instance or not needing to use a history dialog in another instance would suggest and/or motivate one of ordinary skill in the art to specifically determine if an utterance includes all necessary variables.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Haddock, to implement determining whether the utterance representation includes only one of two types of variables, for the purpose of reducing unnecessary processing if the meaning of the query can be ascertained.

Additionally, at col. 6, lines 48-60, Haddock discloses in order to form the completed query of (WHICH X s.t. (PAINT DEGAS X)), the value of the *REF(he) is obtained from a previous query, which reads on "merge the variable with the history vector to derive said in-context meaning vector."

Regarding claims 5 and 12, at col. 6, lines 39-59, Haddock discloses the functionality of the system for determining the meaning of an ambiguous query, in which the query representation contains the pronoun "he". The query is ambiguous because "it is not yet known who the pronoun "he" refers to because that information lies outside the query" (col. 6, lines 45-

47). In this instance the system uses the history information to determine to whom "he" refers. However, if the utterance contains both of the attributes of the utterance, there is no ambiguous query and there is no need to use the history vector, as indicated in col. 5, lines 33-42, in which the query provided includes the names of the specific painter of whom a user wishes to retrieve information (query 1 and query 2), which reads on "determining whether the utterance vector includes both the first and second variable type and if so to refrain from using the history vector to derive said in-context meaning vector."

Claims 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haddock in view of Junqua et al (US Patent No. 6,314,398), hereinafter referred to as Junqua.

Regarding claim 26, Haddock teaches everything as claimed in claim 23. Additionally, at col. 4, lines 25-27, Haddock indicates the user can communicate with the system by talking to the computer, which reads on "a speech recognizer." Haddock does not specifically teach implementation of a speech synthesizer. However, using synthetic speech for a human-computer interactive system is well known in the art, as taught by Junqua.

In a similar field of endeavor, Junqua teaches a method of using speech understanding for automatic channel selection in interactive television. The system allows for multi-modal input and provides an appropriate output modality. Specifically, the system allows the user to access the system via a telephone (using speech recognition and natural language techniques) and provides an appropriate response and output to the user via synthetic speech (col. 1, line 57 continuing to col. 2, line 3).

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Haddock to implement a speech synthesizer, as taught by Junqua, for the purpose of allowing a user to access and retrieve information from multi-media products over the telephone, as suggested by Junqua (col. 1, line 67 – col. 2, line 3).

Regarding claim 27, Haddock and Junqua teach everything as claimed in claim 26. Additionally, at col. 4, line 50 continuing to col. 5, line 18 and Figures 2-4 and 6, Haddock describes the displaying of the user's queries and the system's responses, pointing out areas described as workspace, history space, etc., which reads on "graphical user interface."

Regarding claims 28-30, Haddock teaches everything as claimed in claim 23. Haddock does not specifically teach implementation of the system in an electronic programming guide application for use with a set-top box. However, such implementation is well known in the art, as taught by Junqua.

Junqua teaches a method of using speech understanding for automatic channel selection in interactive television, which receives spoken requests from a user, processes the request via natural language processing, and provides synthetic output of information, for use in an electronic programming guide application (Abstract, Figure 1, col. 1, lines 45-50, col. 3, lines 9-17, col. 4, lines 22-41, col. 7, lines 32-41).

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Haddock et al to implement the system in an electronic programming guide application, for the purpose of removing ambiguity from the natural language input to the electronic programming guide application.

(11) Response to Argument

Applicant's arguments filed August 12, 2002 have been fully considered but they are not persuasive.

Regarding claim 1, Applicant argues Haddock never suggests using a state vector and there is no attempt to break each state vector into attribute value pairs. The Examiner disagrees and argues the system of Haddock produces a syntactic structure based upon a question/sentence format to represent a set of questions, a set of nouns, a set of phrases, and a set of verbs. At col. 6, lines 29-41 Haddock discloses the system characterizes the query to find values of the variable that fulfills the condition or question within the query. In the example provided by Haddock, Haddock uses the query "What did he paint" (col. 5, lines 30-40). The system processes the query to generate the syntactic structure (WHICH X s.t. (PAINT *REF(he) X)), which reads on the "state vector", and the request of the query is to find any values of X that meet the condition of (PAINT *REF(he) X). The condition (PAINT REF(he) X), is comprised of a semantic predicate PAINT and two variables, the painter (REF(he)) and the painting (X), which reads on "form an attribute, value pair for said state vector."

Regarding claim 13, Applicant argues the claim limitations are not obvious over Haddock. The Examiner disagrees, and, referring applicant to the rejection of claim 13 above, argues that Haddock processes the user query to generate the syntactic structure, which reads on "developing a first representation", tracks and maintains previous user queries, which reads on developing a second representation, and Haddock discloses the functionality of the system for determining the meaning of an ambiguous query, in which the query representation contains the pronoun "he". Haddock discloses that in order to form the completed query, the system uses the

history information to determine to whom "he" refers (col. 6, lines 48-60), which reads on "merging the first representation with the second representation to form a third representation." Haddock's determination of needing to use the history dialog to resolve an ambiguous query in one instance (col. 6, lines 13-14 and 48-60) or not needing to use a history dialog in another instance (col. 5, lines 37-38) would suggest and/or motivate one of ordinary skill in the art to specifically determine if an utterance includes all necessary variables.

Regarding claim 14, Applicant argues the claim limitations are not obvious over Haddock. The Examiner disagrees, and referring applicant to the rejection of claim 14 above, argues that Haddock processes the user query to generate the syntactic structure, which reads on "developing a first representation", the system tracks and maintains a history dialog of previous user queries and system responses, which reads on "developing a second representation", and Haddock teaches that the system processes user queries and if an ambiguous query is submitted, the system is used as a means for determining the meaning of an ambiguous query, in which the query representation contains the pronoun "he". Haddock discloses in order to form the completed query, the system uses the history information to determine to whom "he" refers, which reads on "use a second representation to form a third representation and insert the where variable into the second representation." Haddock's determination of needing to use the history dialog to resolve an ambiguous query in one instance or not needing to use a history dialog in another instance would suggest and/or motivate one of ordinary skill in the art to specifically determine if an utterance includes all necessary variables.

Regarding claim 15, Applicant argues the claim limitations are not obvious over Haddock. The Examiner disagrees, and referring applicant to the rejection of claim 15 above,

argues that Haddock processes the user query to generate the syntactic structure, which reads on "developing a first representation", the system also stores previous user queries and system response to user queries to create a dialog history, which reads on "developing a second representation", and at col. 7, lines 10-35, Haddock refers to the ambiguous fourth query from col. 5, lines 42-44, in which "these" is used in the query. Haddock discloses in order to form the completed query, the system uses the history information to determine to what "these" refers, which reads on "use a second representation to form a third representation and insert the where variable into the second representation." Haddock's determination of needing to use the history dialog to resolve the ambiguous query that included "these" or not needing to use a history dialog in another instance would suggest and/or motivate one of ordinary skill in the art to specifically determine if an utterance includes all necessary variables.

Regarding claim 16, Applicant argues the claim limitations are not obvious over Haddock. The Examiner disagrees, and referring applicant to the rejection of claim 16 above, argues that Haddock processes the user query to generate the syntactic structure, which reads on "developing a first representation", tracks and maintains previous user queries and system responses to user queries to create a dialog history representation, which reads on "developing a second representation", and Haddock indicates an example of multiple ambiguity "Which of these did he paint?", a query with neither variable specifically indicated (col. 7, lines 10-35). In this instance, the user query or representation is not made up of any variables specifically provided for by the user input, but instead is formed based on the saved dialog history ("second representation") when the system uses the dialog history to resolve any ambiguities, which reads on "make the third representation the same as the second representation."

Regarding claim 17, Applicant argues the claim limitations are not obvious over Haddock. The Examiner disagrees, and referring applicant to the rejection of claim 17 above, argues that if the utterance contains both of the attributes of the utterance, there is no ambiguous query and there is no need to use the history vector, as indicated in col. 5, lines 33-42, in which the query provided includes the names of the specific painter of whom a user wishes to retrieve information (query 1 and query 2), which reads on "determining whether both a where variable and a select variable are contained in the first representation." Thus, the user's actual utterance "first representation" is used to generate the "third representation", and all user input is saved in the dialog history, which reads on "use the third representation as the second representation."

Regarding claim 24, Applicant argues the claim limitations are not obvious over Haddock. The Examiner disagrees, and referring applicant to the rejection of claim 24 above, argues that Haddock discloses the format of the syntactic structure includes sentence structure of nouns, phrases, and verbs, and specifically indicates that once any ambiguity in the user query has been resolved, the "query can be translated into a formal database query such as an SQL query," which reads on "using a non-recursive data structure includes using only non-recursive data structures as said value."

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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